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August 9, 2016

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS
DOUG LITTLE - Chairman
BOB STUMP
BOB BURNS
TOM FORESE
ANDY TOBIN

IN THE MATTER OF THE APPLICATION OF TRICO ELECTRIC COOPERATIVE, INC., AN ARIZONA NONPROFIT CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE AND FOR RELATED APPROVALS.	DOCKET NO. E-01461A-15-0363 **Notice of Filing of Reply Testimony**

I hereby file my Reply Testimony in response to Direct Testimonies submitted by TRICO and the ACC Staff on July 29, 2016 in support of the July 8, 2016 Settlement Agreement.

RESPECTFULLY SUBMITTED this 9th day of August 2016,

Robert B. Hall

Arizona Corporation Commission
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IN THE MATTER OF THE APPLICATION OF TRICO ELECTRIC COOPERATIVE, INC., AN ARIZONA NONPROFIT CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE AND FOR RELATED APPROVALS.	DOCKET NO. E-01461A-15-0363

REPLY

TESTIMONY

OF

ROBERT B. HALL

TRICO ELECTRIC, MEMBER

August 9, 2016

Q. Please state your name and address.

A. My name is Robert B. Hall. My address is 4809 W. Pier Mountain Place, Marana, Arizona 85658.

Q. Have you previously testified before this Commission?

A. Yes. I filed Direct Testimonies to the Commission, dated May 18, 2016 and July 18, 2016, regarding TRICO-related Docket Number E-01461A-15-0363.

Q. Have you reviewed the Direct Testimonies submitted by TRICO and the ACC Staff on July 29, 2016 in support of the July 8, 2016 Settlement Agreement?

A. Yes.

Q. What is the purpose of your Reply Testimony?

A. In my reply testimony I will:

1. Discuss, briefly, billing *implications related to increasing Fixed Customer Charge*s as elaborated in the July 29, 2016 TRICO support testimony.
2. Dispute the *need to cover any "lost fixed costs recovery"* for residential solar PV systems interconnected after May 31, 2016.
3. Address the more appropriate *way to quantify "lost fixed cost recovery"* for residential solar PV systems interconnected before June 1, 2016.

Fixed Customer Charges

Q. What are the billing determinants required for establishing billing rates?

A. **Exhibit RBH-S1** describes the billing determinants; the related data are taken from Schedule G-6.0 and are the unbundled costs for the adjusted test year ending December 31, 2014.[1] The two major column groupings in **Exhibit RBH-S1** are the *cost item*s and *cost type*. C*ost items,* are related to the generation, transmission and distribution of electricity, and customer charges.

C*ost type*, indicates whether the cost and associated charges, measured in $/kWh, are *variable* or *fixed*. *Variable* operating costs (in $/kWh) are related to the cost of the fuel (coal, natural gas) necessary to generate a kWh of electricity. *Fixed* charges can be *direct* or *indirect*. A *direct* service charge is levied to cover a cost that can specifically assigned (and is only used by) each and every customer. Traditionally, line hook-up to the residential member, meter, meter reading and billing are fairly charged, and typically across the country are covered by a $5.00 to $10.00 per month Fixed Customer Charge.[2] Bonbright defines basic customer costs as those operating and capital costs found to vary with the number of customers regardless,

1 Docket #E-01461A-15-0363, TRICO Application (October 23, 2015) – Volume 2 of 2 – Schedule G-6.0

or almost regardless, of energy consumption. These costs include only those related to metering, accounting, billing, and other *direct* customer service costs.[3]

Indirect fixed costs are, therefore, all other costs (in $/kWh) that are not either costs related to *variable* costs or *direct* fixed costs. Traditionally, these *indirect* fixed costs, as volumetric charges (in $/kWh), are combined with the fuel costs (in $/kWh), to calculate a member monthly bill (in $/month).

On the other hand, the *direct* fixed costs (in $/kWh) depicted in **Exhibit RBH-S1** are employed to calculate the monthly fixed charge as illustrated at the bottom of **Exhibit RBH-S1**. In this case the customer charge is $14.62/month, close to the $15.00/month charge that has been applied to TRICO member bills over the last several years.

Q. What other useful information is provided by the data presented in Exhibit RBH-S1?

A. The sum of the costs in the Generation/Transmission Cost Item category indicates a total volumetric charge of $0.082095/kWh for that category. In the TRICO *net billing method* proposed to replace *net metering*, that rate is what will be employed to compensate the residential solar PV member for the electricity that the member *exports* to TRICO.

Q. Are there appropriate justifications for increasing the basic customer charge from $15.00/month to $24.00/month?

A. Yes. In his recent testimony David Hedrick justifies the proposed increase in basic customer charge based on the fact that being an electric cooperative means that TRICO's number density (number of customers served per mile) is low in comparison to IOUs in the state, and accordingly, means that TRICO's average investment required per customer is higher.[4] He further provides a listing of service charge rates (in $/month) of several other electric cooperative utilities in the Arizona, Colorado, and New Mexico in support of his proposition; some are already in place, many are pending. Based on this consideration, it seems fair and appropriate to consider moving a portion of the *Distribution: Customer* cost-type from being part of a volumetric charge to being a fixed customer charge.

Exhibit RBH-S2 describes the billing determinants and takes into account that some portion of the *Distribution: Customer* (an indirect fixed cost) is included as part of the fixed charge that appears on the monthly bill. The objective is to move the necessary portion to yield $24.00/month as the proposed basic customer charge. In this case the volumetric rate for the *Distribution: Customer* that remains as a volumetric charge is $0.009348/kWh, while the reminder $0.011210/kWh becomes part of the Customer Charge item where it is converted to be part of the monthly fixed charge (in the case depicted, $24/month).

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2 Melissa Whited, et al., "Caught in a Fix: The Problem with Fixed Charges for Electricity", Synapse Energy Economics, Inc., Cambridge, MA 02139, February 9, 2016, p.8.

3 Bonbright, James . 1961. *Principles of Public Utility Rates*, page 347.

4 Docket #E-01461A-15-0363, Testimony of David Hedrick in Support of Settlement Agreement, July 29, 2016, page 5.

Q. How far up the Distribution Cost Item listing in Exhibit RBH-S2 is it fair and appropriate to go in converting these *indirect* cost items into the monthly basic customer service charge?

A. The real question here is where to draw the line. It is useful to recall the regressive charge effect that has been illustrated using the data provided in the Schedule H-5 form.[5] The median usage of all members is 607-kWh per month (i.e. half of the members consume that amount or less per month, the other half more than that). Using the Cumulative Bill and Cumulative kWh numbers provided on that Schedule, it is inferred that the lower half of the residential member-population consumes just 21.6% of the total electricity consumed by all residential TRICO members. Accordingly, the top half of the member-population consumes 78.4% of the electricity consumed by all TRICO residential class members.

This consumption group imbalance needs to be fairly taken into account regarding charges for *indirect* fixed costs. From the standpoint of covering *indirect* fixed costs, it is fair to charge an amount that reflects the customers' use of the various components that make up the delivery of electricity to the customer (generation, transmission, delivery). The wear and tear on the system parts is much greater (almost four times as much) by the top half of consuming customers compared to those in the lower half of consuming customers. Therefore, covering the most of the *indirect* fixed costs associated with the wear and tear on the system is more appropriately, and fairly, covered as part of the volumetric rate ($/kWh).

Residential solar PV systems interconnected after May 31, 2016 - Lost Fixed Costs.

Q. What are the "lost fixed costs" related to residential PV systems interconnected after May 31, 2016?

A. Actually, there are none. The *Net Billing* method that TRICO has proposed for dealing with residential PV systems is simple and transparent. Using the data from Schedule G-6.0[6] as depicted in **Exhibit RBH-S1,** the volumetric charges are:

1. Energy supply: $0.030795/kWh
2. PP Demand, PP Demand Gen., and Transmission: $0.051300/kWh
3. Distr. Subs., Distr. Backbone, Distr. Dem., and part of Distr. Customer: $0.040285/kWh
4. TOTAL: $0.122380/kWh.

Thus, for *net billing*, the DG customer would pay $0.122380/kWh (the sum of the three individual volumetric rates) to the utility for the *imported* electricity. For electricity *exported to* the utility the DG customer would be credited $0.0830/kWh (the sum of the first two individual volumetric rates) basically, the avoided cost that the utility would have to pay for generation and transmission costs were it not for DG electricity. The DG customer would not be credited $0.040285/kWh (the distribution charge) to reflect the fact that the DG customer is using the distribution network to deliver its *exported* electricity.

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5 Docket #E-01461A-15-0363, TRICO Application (October 23, 2015) – Volume 2 of 2 – Schedule H-5.0

6 Docket #E-01461A-15-0363, TRICO Application (October 23, 2015) – Volume 2 of 2 – Schedule G-6.0

Q. Are there issues related to the TRICO view of "lost fixed costs"?

Yes. It is somewhat awkward to explain the following: in the case for residential PV (PVDG) systems interconnected after May 31, 2016, TRICO will be compensated for the use by PVDG members of the TRICO distribution network to export their electricity to TRICO, yet still claims that amount as a "lost fixed cost" per line 9 of Exhibit DWH-S1 in the David Hedrick Testimony.[7] In other words Line 9 in DWH-S1 needs to be zero, as well as Lines 8 and 13 to reflect the fact that the PVDG member is not using the system pieces described in those lines.

Q. What is the view of ACC Staff regarding the TRICO proposed rate for residential PV systems interconnected after May 31, 2016.

A. In the new, post-net metering, era Staff has indicated that "once the net metering tariff is frozen, there will be *net metered customers* and *export customers*", an apt description of the change.[8] The notion of "lost fixed charges" has no place or meaning moving forward with regard to residential PV systems interconnected after May 31, 2016.

Residential solar PV systems interconnected before June 1, 2016 - Lost Fixed Costs.

Q. Are there "lost fixed costs" related to residential PV systems interconnected before June 1, 2016?

A. Yes. Line 9 in Exhibit DWH-S2 of the David Hedrick Testimony represents a legitimate "lost fixed cost" since, with net metering, TRICO is not being compensated for the use of its distribution network by PVDG members under the net metering program.

It is noted, however, that the total amount of the "lost fixed costs" is $442,260/year (as opposed to the present TRICO estimate of $1,589,710/year). This adjustment takes into account that there are no "lost fixed costs" associated with fuel acquisition and energy production and transmission, and that 30% of the PVDG member output is being self-consumed, and is accordingly, not using the TRICO distribution network for the self-consumed amount of the total output of the member PVDG system.

To recover this $442,260/year lost fixed cost, a "stranded cost" assessment of $0.001164/kWh could be applied to all TRICO monthly bills for the next 20 years. Alternatively, REST funds could be employed to "recover" this ongoing loss if deemed appropriate.

Q. Does this conclude your testimony?

A. Yes.

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7 Docket #E-01461A-15-0363, Testimony of David Hedrick in Support of Settlement Agreement, July 29, 2016.

8 Docket #E-01461A-15-0363, ACC Testimony of Eric Van Epps in Support of Settlement Agreement, July 29, 2016, page 6.

Exhibit RBH – S1

Data Derived from Schedule G-6.0 - pages 3,5 and 7 of 8

Cost Item	Cost Type				
	Variable ($/kWh)	Fixed Indirect ($/kWh)	Fixed Direct ($/kWh)	Total ($/kWh)	Accumul. Total ($/kWh)
Generation/Transmission (GT)					
PP Generation - Energy	0.030795				
PP Demand Generation		0.036561			
PP Demand Delivery		0.012926			
Transmission		0.001813			
				for GT	
Total	0.030795	0.051300		0.082095	0.082095
Distribution (Dist.)					
Dist. Subs.		0.007271			
Dist. Backbone.		0.011686			
Dist. Demand		0.011980			
Dist. Customer		0.020558			
				for Dist.	
Total		0.051495		0.051495	0.13359
Customer Charge (CC)					
Metering			0.006252		
Meter Reading			0.001170		
Cust. Records			0.007560		
Cust. Service			0.001516		
Revenue			0.000979		
				for CC	
Total			0.017477	**0.017477**	0.151067

Calculation of monthly Customer Service Charge

INPUTS	
Total Residential Annual Consumption (kWh/yr)	379,931,171
Number of Residential Customers	37,838
Months per Year	12
Effective Volumetric Rate for Customer Charge ($/kWh)	**0.017477**
OUTPUT	
Monthly Customer Service Charge ($/month)	**14.62**

Exhibit RBH – S2

Data Derived from Schedule G-6.0 - pages 3,5 and 7 of 8

Cost Item	Cost Type				
	Variable ($/kWh)	Fixed Indirect ($/kWh)	Fixed Direct ($/kWh)	Total ($/kWh)	Accumul. Total ($/kWh)
Generation/Transmission **(GT)**					
PP Generation - Energy	0.030795				
PP Demand Generation		0.036561			
PP Demand Delivery		0.012926			
Transmission		0.001813			
				for GT	
Total	0.030795	0.051300		0.082095	0.082095
Distribution **(Dist.)**					
Dist. Subs.		0.007271			
Dist. Backbone.		0.011686			
Dist. Demand		0.011980			
Dist. Customer - Part A		**0.009348**			
				for Dist.	
Total		0.040285		0.040285	0.122380
Customer Charge **(CC)**					
Dist. Customer - Part B		**0.011210**			
Metering			0.006252		
Meter Reading			0.001170		
Cust. Records			0.007560		
Cust. Service			0.001516		
Revenue			0.000979		
				for CC	
Total		0.011210	0.017477	**0.028687**	0.151067

Calculation of monthly Customer Service Charge

INPUTS	
Total Residential Annual Consumption (kWh/yr)	379,931,171
Number of Residential Customers	37,838
Months per Year	12
Effective Volumetric Rate for Customer Charge($/kWh)	**0.028687**
OUTPUT	
Monthly Customer Service Charge ($/month)	**24.00**